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PATENT SPECIFICATION



Application Date: May 2, 1931. No. 12,972/31. 377,983

Complete Left: July 8, 1931.

Complete Accepted: Aug. 2, 1932.

PROVISIONAL SPECIFICATION.

Improvements in or relating to the Spreading of Thermo-plastic Materials on Fabrics.

I, ALLON SKIPSEY, of 20, Battlefield Road, St. Albans, Hertfordshire, British subject, do hereby declare the nature of this invention to be as follows:—

5 This invention refers to the spreading of plastic substances on fabrics, and particularly to the spreading of thermo-plastic substances, such as are used in the manufacture of linoleum, oilcloths, 10 waterproof fabrics and insulating tapes for electrical work, etc.

Such substances may be applied to the fabrics by means of a stationary "doctor" or spreader or knife, below which the 15 fabric is passed over a stationary bedplate, the doctor and bedplate being heated for thermo-plastic substances, but a difficulty heretofore met with in such process especially when spreading very 20 thin coats of compound on poor quality fabrics, is that a thick place, or a weaving flaw in the fabric causes the fabric to "ruck up" under the "doctor", and tear.

The object of this invention is to provide means for spreading the substances which avoids or overcomes such difficulty.

According to the invention the fabric is caused to bridge over a transverse groove cut in the bedplate immediately 30 below the spreader, the lowermost part of the spreader being between and below the highest parts of the bedplate. The bedplate will preferably be of increased thickness at the part which has the groove 35 cut in it.

The passing of the fabric over the groove below the spreader results in a three point contact, the spreader acting to tension the fabric between the edges 40 of the groove, and the resultant space below the fabric allows of any irregularities of thickness or of faulty weaving passing safely below the spreader without harm to the fabric. Further it is possible 45 to spread very thin coats of compound without excessive pressure.

In carrying out the invention according to one example, a bedplate of inverted U-shape is provided carried on a frame, 50 the frame being adapted also to carry a roll of untreated material behind the bed-  
[Price 1/-]

plate with suitable "let-off" mechanism, and carrying a cooling drum and batching or winding up means at a point in front of and beyond the bedplate. Above the 55 bedplate, at its forward edge is a spreader or doctor, adjustable towards and away from the top face of the bedplate, and below such spreader the bedplate is of increased thickness, the increase being on 60 the top side, forming a hump along the forward edge, and in such hump is cut a groove passing from end to end of the bedplate. The spreader when in the working position is arranged to project slightly 65 into the groove so that the fabric passing over the groove is deflected and put in increased tension.

The treated fabric after leaving the spreader passes to a cooling drum arranged 70 a distance from the bedplate, and from there to a batching-up roller.

Any suitable driving means may be incorporated in the machine but usually the cooling drum will be the driven 75 element, so as to pull the fabric through the machine, and the batching-up roller may be frictionally driven therefrom in known manner. If desired an anti-stick- 80 ing lining may be wrapped in with the treated material.

Any suitable heating elements may be used, either steam, gas, or electricity, and the compound will usually be delivered hot 85 to the spreader from an extrusion machine.

The bedplate will usually be in the form of a metal table of inverted U-shape and having a raised part in which the groove is formed near one end. It may, 90 however, take various other forms, such as that of an inverted V, or horse-shoe. In all cases, the bedplate will be such as not to become distorted when heated, and remain rigid under the pressure of 95 spreading.

Dated this 1st day of May, 1931.

For the Applicant,  
WILSON, GUNN & ELLIS,  
Chartered Patent Agents,  
55, Market Street, Manchester.

Price 4s 6d

## COMPLETE SPECIFICATION.

## Improvements in or relating to the Spreading of Thermo-plastic Materials on Fabrics.

I, ALLON SKIPSEY, of 20, Battlefield Road, St. Albans, Hertfordshire, British subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention refers to the spreading of thermo-plastic substances on fabrics, and particularly to the spreading of thermo-plastic substances such as are used in the manufacture of linoleum, oilcloths, waterproof fabrics and insulating tapes for electrical work, etc.

Such substances may be applied to the fabrics by means of a stationary "doctor" or spreader or knife, below which the fabric is passed over a stationary bedplate, the doctor and bedplate being heated for thermo-plastic substances, but a difficulty heretofore met with in such process especially when spreading very thin coats of compound on poor quality fabrics, is that a thick place, or a weaving flaw in the fabric causes the fabric to "ruck up" under the "doctor", and tear.

The object of this invention is to provide means for spreading the substances which avoids or overcomes such difficulty.

According to the invention, the fabric is caused to bridge over a groove or cut-away portion of a heated bedplate opposite the spreader, the extreme end of the spreader being between and below the highest parts of the bedplate. The bedplate may be disposed below or above the spreader as desired, but will preferably be of increased thickness at the part having the groove or cut-away portion. Alternatively the groove may be in the "doctor", and the spreader on the bedplate.

The invention may also comprise a machine embodying the improved bedplate and spreader, substantially as hereinafter described and illustrated.

The passing of the fabric over the groove below the spreader whilst allowing of the required heating of the materials results in a three point contact, the spreader acting to tension the fabric between the edges of the groove, and the resultant space below the fabric allows of any irregularities of thickness or of faulty weaving passing safely below the spreader without harm to the fabric. Further, it is possible to spread very thin coats of

compound without excessive pressure. The invention does not include the spreading of materials which are not thermo-plastic, and which do not require heat when being spread. In such cases, it has been proposed to employ a "doctor", the edge of which is between and below the sides of a gap over which the fabric to be treated is passed.

Upon the accompanying drawing:—

Fig. 1 is an elevation of a simple form of spreading apparatus incorporating the improved bedplate and spreader.

Figs. 2 to 6 are sectional views of alternative forms of bedplate.

Fig. 7 is a diagrammatic view, corresponding to Fig. 1, illustrating a modified arrangement of spreading apparatus, and

Fig. 8 is a sectional view of the bedplate and spreader shown in Fig. 7.

Referring to Fig. 1, a bedplate *a* of inverted U-shape is provided carried on a frame *b*, the frame being adapted also to carry a roll *c* of untreated material behind the bedplate, with suitable "let-off" mechanism *d*, and to carry a cooling drum *e* and batching or winding up means *f* at a point in front of and beyond the bedplate. Above the bedplate *a*, at its forward edge is a spreader or doctor *g*, adjustable towards and away from the top face of the bedplate, and below such spreader the bedplate is of increased thickness, the increase being on the top side, forming a hump *a*<sup>1</sup> along the forward edge, and in such hump is cut a groove *a*<sup>2</sup> passing from end to end of the bedplate. The spreader *g* when in the working position is arranged to project slightly into the groove *a*<sup>2</sup> so that the fabric passing over the groove is deflected and put in increased tension (see Fig. 3).

The treated fabric after leaving the spreader passes to the cooling drum *e* arranged a distance from the bedplate, and from there to the batching-up roller *f*.

Any suitable driving means may be incorporated in the machine but usually the cooling drum will be the driven element, so as to pull the fabric through the machine, and the batching-up roller may be frictionally driven therefrom in known manner. If desired an anti-sticking lining may be wrapped in with the treated material. In the example illustrated, manual means *h* is provided for rotating the batching roller.

Any suitable heating elements may be used, either steam, gas, or electricity, and the compound will usually be delivered hot to the spreader, immediately behind the groove  $a^3$  from an extrusion machine.

The bedplate may be in the form of a metal table of inverted U-shape as shown in Figs. 1 to 4, and may have a groove in its flat top face (see Fig. 2) or may have a raised part near one end in which the groove is formed (see Figs. 1, 3 and 4). It may, however, take various other forms, such as that of an inverted V, as shown in Fig. 5, or of a horse-shoe as shown in Fig. 6. In all cases, the bedplate will be such as not to become distorted when heated, and to remain rigid under the pressure of spreading. The walls of the groove may be symmetrical as in Fig. 4, or may vary as in Figs. 5 and 6, to suit the varying direction of the fabric, or to provide a support for the compound.

Instead of the groove being in the bedplate, it may be in the "doctor", and the bedplate be formed with a projection to enter the groove. Such a construction is illustrated in Figs. 7 and 8, the bedplate  $a$  having an extension  $a^3$  which enters the groove  $i^1$  in the member  $i$ .

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In the spreading of thermo-plastic materials on fabrics, passing the fabric over a groove or cut-away portion of a heated bedplate of the machine, and applying the plastic material to the fabric by means of a "doctor" or spreader over the groove, as and for the purpose herein set forth.

2. A machine for spreading thermo-plastic materials on fabrics comprising a grooved bedplate arranged transversely of the machine and a projection on a further member forming a "doctor" or spreader, the working edge of the doctor or spreader lying between and below the highest parts of the groove, and either the groove bedplate or the "doctor", or both, being heated, as and for the purpose set forth.

3. In a machine for spreading thermo-plastic materials on fabrics, a heated bedplate of substantially inverted U-shape, a thickened part in the bedplate and a transverse groove in such thickened part, in combination with a "doctor" or spreader, the working edge of which lies within such groove, as and for the purpose set forth.

4. In a machine for spreading thermo-plastic materials on fabrics, a projecting "doctor" or spreader on a bedplate, and a grooved member forming a further bedplate above same, one or both bedplates being heated, and the working edge of the "doctor" extending into the groove, as and for the purpose set forth.

5. A machine for spreading thermo-plastic materials on fabrics, constructed, arranged and adapted for use, substantially as herein described with reference to Fig. 1 of the accompanying drawing.

6. In a machine for spreading thermo-plastic materials on fabrics, a bedplate and spreader constructed and arranged substantially according to any of the forms herein described and illustrated.

Dated this 7th day of July, 1931.

For the Applicant,

WILSON, GUNN & ELLIS,

Chartered Patent Agents,

55, Market Street, Manchester.

[This Drawing is a reproduction of the Original on a reduced scale.]

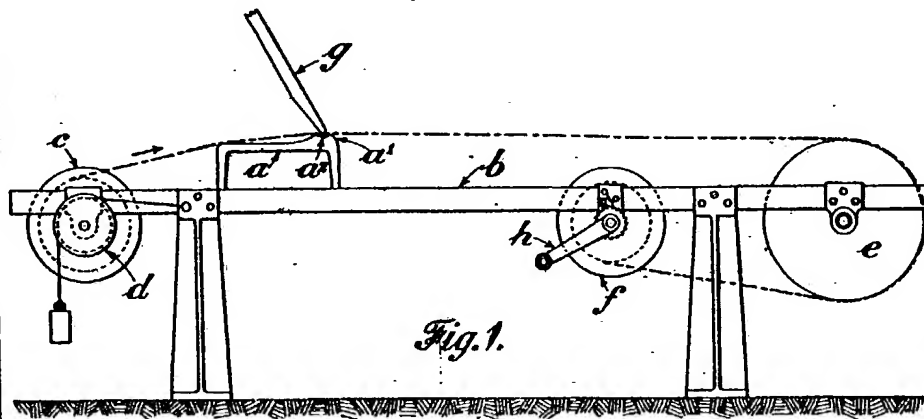


Fig. 1.

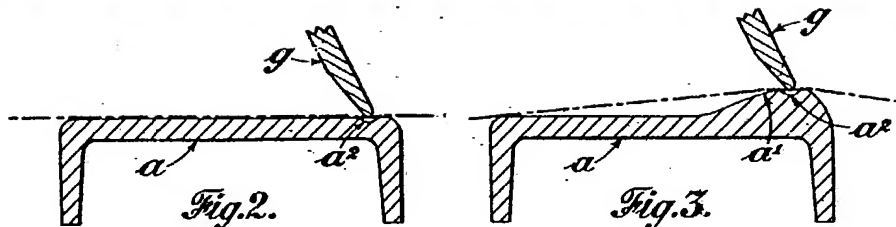


Fig. 2.

Fig. 3.

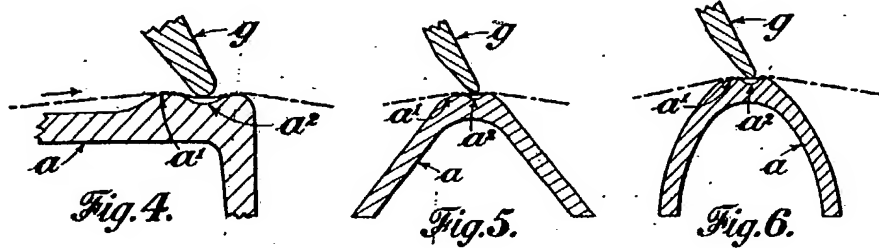


Fig. 4.

Fig. 5.

Fig. 6.

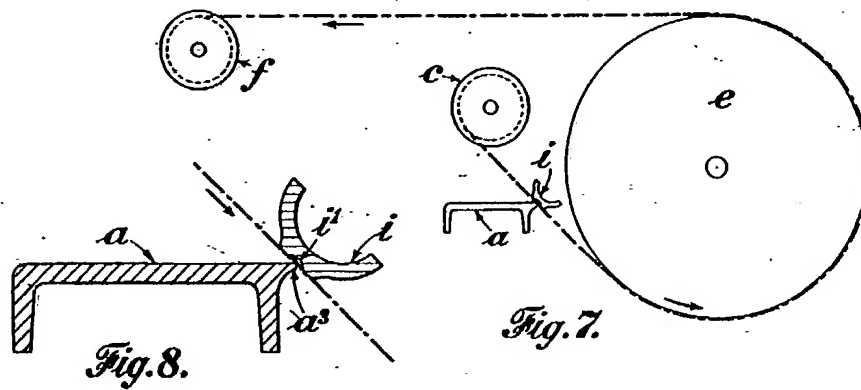


Fig. 8.

Fig. 7.

DERWENT-ACC-NO: 1990-284608

DERWENT-WEEK: 199038

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TITLE: Surface coating machine for flexible substrate - has  
blade scraping surface of substrate ahead of coating pt.,  
cooperating with transverse bending groove in substrate  
support plate

INVENTOR: BABLED, R

PATENT-ASSIGNEE: BABLED R[BABLI]

PRIORITY-DATA: 1989FR-0001116 (January 30, 1989)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
FR 2642332 A	August 3, 1990	N/A	000	N/A

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
FR 2642332A	N/A	1989FR-0001116	January 30, 1989

INT-CL (IPC): B05C001/04, B05C011/04

ABSTRACTED-PUB-NO: FR 2642332A

BASIC-ABSTRACT:

The machine comprises a scraper blade (3) which extends transversely to the direction of workpiece motion. A control system regulates the spacing between the lower edge of the blade and a substrate (4) to be coated.

A feed system delivers coating material to be attached to the substrate to the rear of the scraper blade. A substrate support block (1) includes a transverse groove (2) which is wider than the scraper and located below it. The control system allows the lower edge of the scraper to descend below the level of a leading portion of the substrate support.

USE - Coating of surface layer on elongate substrate of flexible material, e.g. metal, plastics, textile, paper, etc. @(7pp DWg.No 1/1)@

TITLE-TERMS: SURFACE COATING MACHINE FLEXIBLE SUBSTRATE BLADE SCRAPE  
SURFACE  
SUBSTRATE AHEAD COATING COOPERATE TRANSVERSE BEND GROOVE  
SUBSTRATE  
SUPPORT PLATE

**DERWENT-CLASS: P42**

**SECONDARY-ACC-NO:**

**Non-CPI Secondary Accession Numbers: N1990-219445**